

May 29, 1987

M-SVA-SI
Letter Original

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Dear
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:

Enclosed are three reports from INPUT's Market Analysis and Planning Service (MAPS). They are:

- Wholesale Distribution Sector
- Process Manufacturing Sector
- Service Industry Sector

These reports are a part of a series entitled U.S. Information Services Industry-Specific and Cross-Industry Markets. The reports should be filed in the binder of that name in Section III, Industry-Specific, with the tabs provided. All tabs are filed alphabetically in each section. (Please note that Wholesale Distribution is filed under "D" for Distribution.)

Also enclosed are updated 1987 Title Pages to be filed behind the printed title page of each volume. A Table of Contents, which includes all the reports shipped to date for these volumes, is included for your reference and should be filed with the Title Page in Volume I.

You will note the new format for the reports. They have been bound for ease of use but can still be maintained in the binders provided.

If you have any questions or comments, please call me at (415) 960-3990. INPUT, as always, welcomes the opportunity to assist you in the effective use of its information, reports, and services.

Yours truly,

Michael Cohn
Program Manager
Market Analysis and Planning Service

MC:ml

Enclosures



Market
Analysis and
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Services
(MAPS)

U.S. Information
 Services
 Industry-Specific
 Markets
 1986-1991

Service
 Industry
 Sector

INPUT[®]

1943 Landings Drive, Mountain View, CA 94043 (415) 960-3990

STUDY ON THE HISTORY OF THE

CHINESE PEOPLE'S LIBERATION ARMY

IN THE 1940s

BY

CHEN YUAN

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U.S. INFORMATION SERVICES
INDUSTRY-SPECIFIC MARKETS, 1986-1991
SERVICE INDUSTRY SECTOR

APRIL 1987

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Market Analysis and Planning Services (MAPS)

U.S. Information Services Industry-Specific Markets, 1986-1991
Service Industry Sector

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U.S. INFORMATION SERVICES
INDUSTRY-SPECIFIC MARKETS, 1986-1991
SERVICE INDUSTRY SECTOR

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U.S. INFORMATION SERVICES
INDUSTRY-SPECIFIC MARKETS, 1986-1991
SERVICE INDUSTRY SECTOR

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I ISSUES, TRENDS, AND EVENTS

A. INTRODUCTION

- The services sector is composed of a number of widely varying businesses with the common characteristic that they all provide services for a fee or on a contractual basis rather than produce tangible goods. Another common characteristic is that they are all participating in a massive transition in the U.S. from an industrial- to a service-oriented economy. The segments covered in this report include the following:
 - Accounting.
 - Legal services.
 - Architectural and engineering services.
 - Real estate.
 - Business services.
 - Business consulting.
 - Advertising.



- The services industry has seen higher than average growth over the last decade, with employment increasing 250% from 1974 to 1984.
- This sector is driven by people and their ability to render services, so computer applications focus on speeding or improving the quality of personal productivity.
- Since the services sector is composed of diverse segments, the forces determining relative prosperity and disposition to automation vary from segment to segment.

B. ACCOUNTING

- Rapid development of computer technology is the greatest influence driving change in the accounting profession. Not only have computers simplified some accounting tasks, they have also changed the nature and the range of services provided by accountants.
 - Computers have taken over some of the tedious tasks previously performed by accountants (spreadsheet and balance sheet calculations), freeing accountants to focus their attention on more analytical tasks such as interpreting results of spreadsheet analysis and advising appropriate action. This provides a more consultative or value-added service.
 - Accountants and accounting firms are expanding to offer computer services along side their traditional auditing and accounting services. Heavy use of computers in accounting and encroachment of computers into duties traditionally performed by accountants makes this a logical, if not necessary, move for the profession.



- . Some accounting firms currently offer software products and professional services to help clients design and implement their own in-house accounting systems. By moving into the computer services market, accounting firms can benefit from advancing technology rather than be replaced by it.

- . Recent developments in telecommunications and integrated software technology will greatly facilitate utilization and transfer of information within accounting firms and between firms and their clients. A scenario for interactions between accounting firms and their clients within the next five years includes data communications through dedicated lines or high-quality phone modems and extensive software integration which will make single sets of data available to many applications. For example, an accounting firm auditing its clients will enter ledger information into its own computer by having the computer read straight from the client's data base. Perhaps one program will use these data to prepare balance sheets and another will compile and analyze data from a number of clients to try to identify industry trends. If the accounting firm's software is fully integrated, all applications will have access to a central data base which will contain all appropriate information collected from clients. Proper integration will dramatically reduce data entry and data collection time.

- The liability insurance crisis is a concern for accountants just as it is for all the other participants in the services sector. In some cases, firms have chosen to forego liability insurance due to its excessive cost, reasoning that disgruntled clients would have to spend more money to gain a settlement than they are likely to receive. Other firms are working on alternative or innovative methods for covering themselves. Such methods include self-insurance and cooperative captive insurance companies formed by a number of firms within an industry.



- Since accounting firms are participants in the computer services industry, cross-industry time and billing, office automation, maintenance services, and other professional services are the remaining areas for which they are likely to require outside products and services.

C. LEGAL SERVICES

- The services provided by lawyers and law firms are broad and varied and are, therefore, influenced by a wide variety of external and internal forces. Some of the issues and developments currently affecting the legal services industry are advertising of legal services, prepaid legal service plans, the liability insurance crisis, deregulation of communications, and tax reform.
- Since 1908, the American Bar Association (ABA) and other professional societies have restricted advertising of legal services, feeling that advertising diminished the prestige of the legal profession. A landmark decision in 1977 legally lifted the ban, but advertising is still a controversial issue among lawyers. A study published in the June/July issue of the Journal of Advertising Research found that most consumers favor advertising and do not feel that it diminishes the dignity of the profession. Such attitudes combined with increasing competition among lawyers indicate that advertising for legal services will increase rapidly in the next few years.
- Prepaid legal plans, when available, are usually administered as part of an employee benefits package. A single annual payment covers all routine consultation, and plans usually contain some provision for payment of non-routine legal services.
- Both advertising and prepaid legal plans illustrate an effort on the part of the legal services industry to reach a new market of potential clients who might



not have ever considered consulting a lawyer. Once exposed to the services available to them through lawyers, these people are more likely to turn to legal services for other routine consultations or for help with other legal problems.

- The effect of all this on computer applications for legal services will be to increase the market for recordkeeping, document preparation, and office automation applications. Lawyers will need well organized, easy-to-use document preparation and recordkeeping systems to track their numerous small cases, and increasing emphasis on consultation and routine services will lead to a need for improved efficiency in office automation.
- Legal services relating to the communications industry and personal and corporate tax will be in high demand for the next several years and should provide an active market for computer services.
 - Deregulation of communications, in addition to giant strides in communications technology, opens uncharted areas of law for which cases in the near future will set precedent and change the character of communications law to more closely resemble general business law. The issues covered by communications lawyers include a declining percentage of cases involving interpretation of FCC regulations and an increasing percentage of cases involving mergers and acquisitions among the scores of new companies entering the industry.
 - Even lawyers established in communications are having to learn and adjust their practices to the new subtleties of the industry. This opens opportunities for newcomers who suffer a relatively small disadvantage to their experienced competitors. These newcomers will be opening shop or reshuffling business priorities, and many will be looking to update or augment their computer systems as well.

- Tax reform will clearly offer opportunities for tax lawyers to offer consulting services to businesses and consumers trying to sort out budgets and investments to take advantage of remaining or new tax shelters. Shortcomings of the 1986 tax reform bill will become apparent during the next five years. This will prompt new legislation and new opportunities for tax lawyers to help their clients take advantage of these new laws.

D. ARCHITECTURAL/ENGINEERING SERVICES

- Nonresidential construction has been booming in a badly inflated market, and the reality of this situation is expected to become very apparent within the next year or so. Vacancy rates in office buildings nationwide are very high and are not expected to be absorbed until well into the next decade. The unneeded boom in construction is due, in part, to low interest rates favoring investment in real estate development and fear that tax reform may increase the cost of new development. Vacancy rates will become apparent in the form of lower rents, and demand for office construction will decrease, causing a slump in new construction starts.
- More than 80% of all architectural/engineering services are related to construction--mostly commercial and public. While there are a number of large design firms offering a full menu of architectural/engineering services, most firms are small and specialized.
- The foreign demand for U.S. design services is down due to falling oil prices, slow growth in industrialized nations, weaker construction plans in developing countries, and stiff foreign competition.
- The Middle East is the largest foreign market for U.S. design and engineering services, followed closely by Asia, particularly the People's Republic of China.



- The Middle East has remained the largest foreign market despite serious drops in the number of contracts over the past several years (27% decrease in 1985-1986).
- The only foreign market in which contract volume is increasing is Latin America where the number of contracts increased 21% from 1984 to 1985 despite serious debt problems.
- The promising domestic markets include energy and environmental concerns--electricity cogeneration plants, trash-to-energy plants, and toxic waste cleanup.
- The liability insurance crisis hits architectural/engineering firms particularly hard because of the potentially disastrous consequences of error. The incidence of "going bare" on liability insurance is high in this segment because the cost of insurance is prohibitive.
- Project management, time-and-billing, and general office automation are the primary functions of information services in this sector. Computer-aided design (CAD) applications are being used with increasing frequency. CAD systems are used to improve quality of design rather than to reduce costs.

E. REAL ESTATE

- Real estate consists of a number of subsegments, each with its own set of computer service needs.
 - Property Management. This includes managers of commercial and residential property for lease or rent. Applications for this subsegment include accounting, tenant information maintenance, and on-line data

bases containing industry statistics and information on lease and rent laws.

- Real Estate Development. The goal of real estate development is to purchase and develop land in the most profitable ways possible. Computer services needs include on-line data bases which keep track of properties for sale and their prices and spreadsheet software for analyzing potential investments.
- Real Estate Investment. Real estate investments such as limited partnerships essentially provide start-up capital for real estate developers or property managers. Computer services needs for this subsegment are the same as those for real estate development.
- Although these subsegments are distinct in definition, there is much interaction among them, and economic factors influencing one generally influence all of them.
- As mentioned in the section on architectural/engineering services, the commercial real estate market is in a state of flux due to two major factors:
 - Overbuilding of commercial office space.
 - Tax reform.
- Vacancy rates in commercial buildings are greater than 20% in 18 of the 20 biggest cities in the U.S. according to an interview in the National Real Estate Investor with Arch Jacobsen, President of the Prudential Realty Group. This vacancy rate is causing rents to decrease which, in turn, decreases profitability and discourages new investment.
- Tax reform will discourage those real estate investments that were set up primarily for tax advantage rather than for income. New investments in real



estate will be based on the economic value of the property and its prospects for generating profits rather than on the investment's tax sheltering characteristics. The long-term effect of this should be to help stabilize the boom and bust cycles characteristics of real estate in the past.

- Industry experts expect a three- to four-year "cooling off" period for real estate development while the current glut of office space is absorbed.
- The impact on computer services for real estate analysis (in the development and investment area) will be more important than ever to help determine the economic soundness of investments.
- Computer services for property management should progress along the same lines as computer services for most other management-related sectors.
 - Software. The trend toward integrated software will persist.
 - Processing Services. The demand for on-line data bases will increase rapidly and demand for remote computing services will diminish.
 - Professional Services. Markets for system design and integration and education and training will grow.
 - Turnkey Systems. Having wiring for computer networks built into structures (intelligent buildings) will be a new selling point for commercial and residential properties.

F. BUSINESS SERVICES

- The business services segment is itself a conglomeration of subsegments. The subsegments covered by this report include the following:



- Business consulting.
- Advertising and public relations.
- The business services segment is affected relatively little by general economic cycles. Demand for consulting, advertising, and public relations services remains stable through peaks and valleys of other segments of the economy.
- Business consulting is a fragmented subsegment of the business services segment. It is characterized by a small number of large companies and a large number of small companies.
- In the early 1980s consulting revenue reached \$3 billion, with the top 30 firms billing \$2 billion.
- Employment for this segment is close to 50,000 full-time consultants and some 30,000 part-time consultants.
- Business consulting, and strategy consulting in particular, has developed into a highly sophisticated and technical field over the last 20 years. Mathematical modeling of various aspects of the economy and extensive statistical analyses are the focuses of this field, making it a major consumer of computer services.
- This subsegment, along with the legal services segment, ranks among the two or three largest markets for on-line data bases, particularly news and business data bases such as Mead Data Central's Nexis (as opposed to LEXIS, Mead's legal data base) and various data bases provided by Dialog Information Services, Inc.



- Computer applications for business services include time and billing and general office automation in addition to mathematical modeling, statistical analysis, and on-line data bases.
- "Consolidation" describes the advertising industry in 1986. Some of the largest advertising firms in the country have joined forces during the past year. The resulting reshuffling is changing the structure and character of the industry.
- There is some fear that the bureaucracy of very large advertising firms may stifle creativity and damage relationships between agencies and clients. There is no question that agency/client relationships have suffered during the reassigning and settling of accounts in the new "mega-agencies."
- Bureaucracy in large firms may engender a new breed of advertising firm. Top creative professionals, dissatisfied with the work conditions created by cumbersome administration, will form small agencies of their own devoted to serving a small number of very big clients.
- "International presence" is increasingly a fundamental demand large corporations make on their advertising agencies. Much effort is being expended on research to determine the best ways to approach cultural segments of international markets.
- Major computer applications in advertising include desktop publishing and general office automation.
- The development of the laser printer has broken open the desktop publishing market by making very high quality print and graphics available through microcomputers. This is especially important to the advertising industry since advertisers can now present polished ad copy without having to coordinate with a printing department.



the 1990s, the number of people in the UK who are aged 65 and over has increased by 1.5 million, and the number of people aged 75 and over has increased by 1.2 million (Office of National Statistics 2000). The number of people aged 85 and over has increased by 0.5 million.

There is a growing awareness of the need to address the needs of older people, and the need to ensure that they are able to live independently and safely. This has led to a number of initiatives, including the development of new services and the provision of training for health and social care professionals. The aim of this paper is to review the current state of research on the needs of older people, and to discuss the implications for practice.

Introduction

The number of people in the UK who are aged 65 and over has increased by 1.5 million since 1990, and the number of people aged 75 and over has increased by 1.2 million (Office of National Statistics 2000). The number of people aged 85 and over has increased by 0.5 million. This increase in the number of older people has led to a growing awareness of the need to address the needs of older people, and the need to ensure that they are able to live independently and safely.

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Background

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Conclusion

The number of people in the UK who are aged 65 and over has increased by 1.5 million since 1990, and the number of people aged 75 and over has increased by 1.2 million (Office of National Statistics 2000). The number of people aged 85 and over has increased by 0.5 million. This increase in the number of older people has led to a growing awareness of the need to address the needs of older people, and the need to ensure that they are able to live independently and safely.

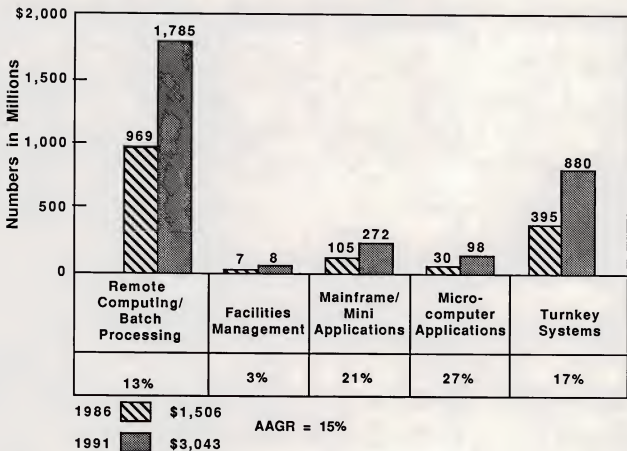
II MARKET FORECAST

- The services sector includes SIC codes 65, 73, and 81. This includes accounting, architectural and engineering services, legal services, real estate, and business consulting and advertising.
- Demand for industry-specific information services in the services sector will reach \$1.7 billion in 1987. This represents a 7% growth rate from the 1986 figure of \$1.5 billion.
- Exhibit II-1 presents a graphic summary of the size and growth forecast from this sector from 1986 to 1991.
- Through 1991, spending for information services will grow at a compound annual rate of 15% in the services sector.
- Software products will be the fastest growing delivery mode with an average annual growth rate of 22% through 1991. Microcomputer software will grow at an annual rate of 27% while mainframe/mini software will grow a little more slowly at 21%.
- Turnkey systems follows software products with a 17% average annual growth rate.
- Processing services brings up the rear with an average annual rate of 13% through 1991. Processing facility management will experience a sluggish 3%



EXHIBIT II-1

SERVICES SECTOR FORECAST
INDUSTRY-SPECIFIC INFORMATION SERVICES
USER EXPENDITURES
(\$ Millions)





growth rate over the same time span but, due to the very small size of the market, this has little impact on the overall rate of growth for processing services.

- Processing services will remain the dominant delivery mode in terms of overall size, claiming 65% of all information services expenditures in the services sector in 1986, 59% in 1991.
- Turnkey systems follows processing services with 26% of information services expenditures in 1986, 29% in 1991.





III COMPETITIVE DEVELOPMENTS

A. INTRODUCTION

- The information services market for the services sector defies definition because of its wide variety. However, some comments on information services markets for the segments follow:
 - Accounting. Vendors include CPA firms themselves, including the "Big Eight," as well as suppliers of tax preparation software and services such as CCH Computax, Computer Language Research, Inc., and a fragmented market of vendors supplying time-and-billing and client write-up packages.
 - Architectural/Engineering Services. Leaders include McDonnell Douglas' Architectural, Engineering and Construction Systems Division, IBM for computer-aided design and other technical applications, and Metier Management Systems, Inc. for project management packages. Other project management vendors include Design Consultants, Inc., Information Builders, Inc., Management Science America, Inc., and SAS Institute.
 - Legal Services. The legal services market is very compact, with a very few leading vendors and a long list of smaller vendors. Leaders include Mead Data Central and Westlaw for data base services, Inslaw, Inc. for software, and Barrister Information Systems Corporation for software and turnkey systems.



- Business Services. Major applications for business services include standard spreadsheet, data base, and scheduling applications. The list of players in these areas is long and varied. A few notable competitors are Lotus Development Corporation, Ashton-Tate, Visicorp, and Jonas and Erickson Software Technology, Inc.
- Real Estate. Many of the firms which provide software and services to one subsegment of the real estate market (property management, appraisal, investment analysis) also provide software and services to the other subsegments. Major players in the real estate market include Timberline Systems, Tenman, SSI, Analytic Science, Inc., Informatics (a division of Sterling Software), Automatic Data Processing, Inc., and Management Reports, Inc.

B. VENDOR PROFILES

I. TIMBERLINE SOFTWARE CORPORATION

a. Markets Served

- Timberline Software specializes in property management and project management software for real estate and architectural/engineering services firms. Primary products include PROMPT, a minicomputer-based property management system for large commercial properties; TENANTRAC, a microcomputer-based system for residential property management; and AEPEX, a microcomputer-based project management and accounting package for architects and engineers. All of these are vertical market accounting packages specialized to suit the needs of commercial and residential property managers and architectural/engineering firms.



- Timberline has approximately 6,000 installations of micro and minicomputer software packages.

b. Company Strategy

- Timberline seeks to provide specialized vertical market accounting systems to a small set of vertical markets related to construction and real estate.

c. Recent Events

- In March 1986, the company sold its hardware sales division to Poorman Douglas Corporation and subsequently changed its name from Timberline Systems, Inc. to Timberline Software Corporation so as to reflect its focus on providing software products.
- The company's sales dropped from nearly \$11 million in 1985 to a little over \$7 million in 1986 due to its discontinuing hardware sales.

d. Future Directions

- Timberline places increasing emphasis on software products and, in particular, software products for powerful microcomputers. Nearly half of the company's 1986 revenue came from sales of micro software, and this proportion is expected to increase in 1987. The company may also expand its offerings for architectural/engineering services which now constitute 14% of sales.

2. MEAD DATA CENTRAL

a. Markets Served

- Mead Data Central provides on-line data base services to the accounting, business services, and legal services segments with an emphasis on legal services.



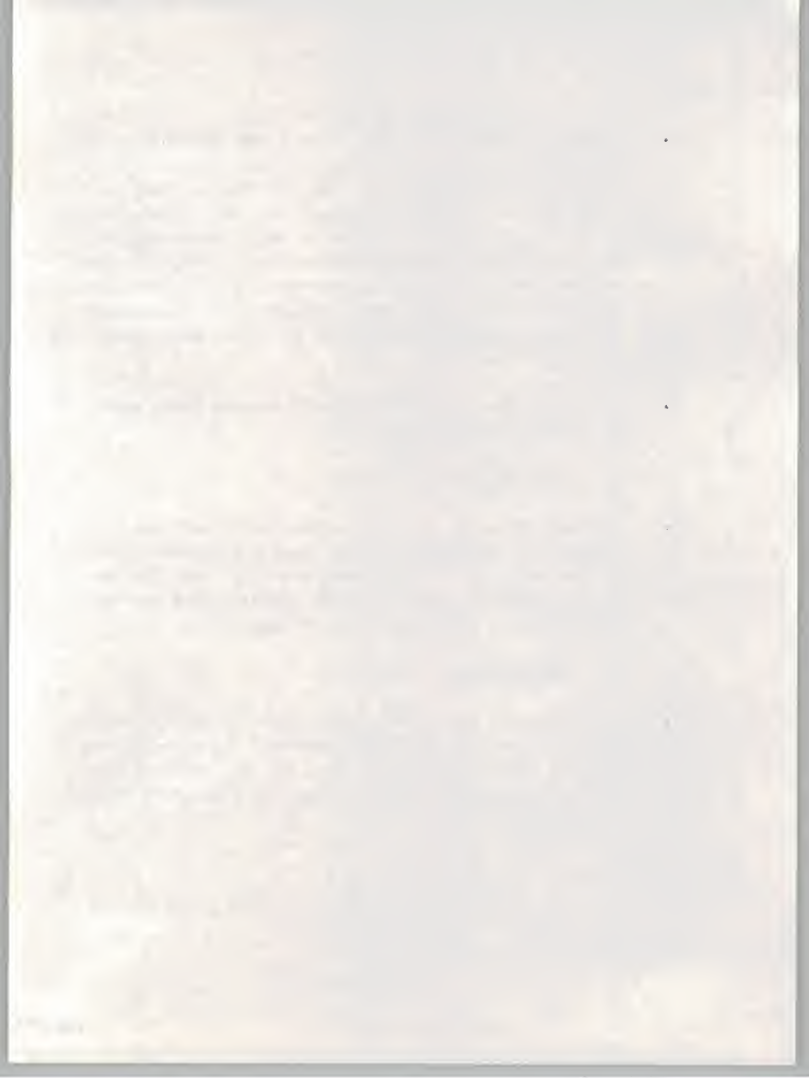
- MDC's primary product is LEXIS, a full-text legal information retrieval system consisting of over 3 million documents and growing at the rate of approximately 13,000 documents per week. Other Mead data bases include NEXIS, a full-text news and general information data base; LEXPAT, a patent law data base; EXCHANGE, a data base of financial and investment information; and ECLIPSE, an electronic clipping service. In addition, subscribers to Mead's services can access other well known data bases including Lockheed's DIALOG system of data bases covering science, medicine, business, and the humanities and the NAARS data base of corporate annual reports for certified public accountants.
- Clients access Mead's network via dedicated terminals or through their own video terminals or personal computers.

b. Company Strategy

- Mead seeks to provide an all-encompassing system of data bases via its network. Its ultimate goal is to be a one-stop source of information on almost any conceivable topic. One possible drawback to the very large size of Mead's network of data bases is that users with very specific interests might find it difficult to locate the correct source within the network.

c. Future Directions

- Mead Corporation, Mead Data Central's parent company, is devoting increasing resources to its data base division while paring down its other activities. MDC is well situated to take full advantage of the on-line information market which is expected to grow at an annual rate of 20.6% to reach \$3.5 billion by 1988.



3. BARRISTER INFORMATION SYSTEMS CORPORATION

a. Markets Served

- Barrister serves the legal service market exclusively, providing turnkey systems, software products, processing services, professional services, and service and maintenance. Most of its turnkey systems are based on proprietary hardware, although a few use hardware from Data General. Functions provided by Barrister's applications include every aspect of law office automation including accounting, word processing, spreadsheets, data base management systems, docket control, recordkeeping, and document management for litigation support.

b. Company Strategy

- By supplying every kind of computer product or service to its clients, Barrister has positioned itself as a provider of comprehensive computer services to law offices. The company's biggest selling point is that it can make managing a computer system very easy for law offices by being a central source for any computer product and for solutions to any computer problem

c. Recent Events

- In June 1986, Barrister filed a registration statement for a public offering of 550,000 shares of common stock. This was the company's second offering; its initial offering was in July 1985.
- In February 1987, Barrister announced a new series of 32-bit multiprocessing computers called the 3100 series. At the same time, the company announced several other new products including a new line of mass storage devices, an electronic mail package, and a new line of personal computers.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for the transparency and accountability of the organization. The text outlines the various methods used to collect and analyze data, ensuring that all information is up-to-date and reliable.

2. The second part of the document focuses on the implementation of these practices. It details the steps involved in setting up a robust system for data collection and analysis. This includes identifying key performance indicators (KPIs) and establishing a clear timeline for data collection. The document also addresses the challenges faced during the implementation process and provides strategies to overcome them.

3. The third part of the document discusses the role of technology in enhancing data management. It highlights the benefits of using specialized software for data collection and analysis, such as improved accuracy and efficiency. The text also mentions the importance of training staff to use these tools effectively and securely.

4. The fourth part of the document covers the importance of regular audits and reviews. It explains how these processes help in identifying discrepancies and ensuring that the data remains accurate and consistent. The document also discusses the role of external auditors in providing an independent assessment of the organization's data management practices.

5. The fifth part of the document discusses the importance of communication and collaboration. It emphasizes that all stakeholders must be involved in the data management process to ensure its success. The text outlines the need for regular communication and collaboration between different departments and teams within the organization.

6. The sixth part of the document discusses the importance of data security. It highlights the risks associated with data breaches and the need for robust security measures to protect sensitive information. The text outlines the various security protocols and measures that should be implemented to ensure the safety of the organization's data.

7. The seventh part of the document discusses the importance of data privacy. It emphasizes that the organization must comply with relevant data privacy laws and regulations. The text outlines the steps involved in ensuring data privacy, such as obtaining consent from data subjects and implementing data protection measures.

8. The eighth part of the document discusses the importance of data retention. It explains how long data should be kept and the reasons for retaining it. The text also discusses the process of archiving data and the importance of ensuring that archived data remains accessible and secure.

9. The ninth part of the document discusses the importance of data disposal. It outlines the proper procedures for disposing of data that is no longer needed or is obsolete. The text emphasizes the need to ensure that data is disposed of securely and in compliance with relevant regulations.

10. The tenth part of the document discusses the importance of data backup and recovery. It outlines the steps involved in creating and maintaining backups of the organization's data. The text also discusses the importance of having a disaster recovery plan in place to ensure that data can be restored in the event of a system failure or disaster.

- The company opened a district office in San Francisco during November 1986.

d. Future Directions

- Keeping up with rapid advancements in hardware technology presents a challenge for a medium-size vendor which does not specialize in hardware, but seeing a promising market ahead, Barrister devotes over 10% of annual revenue to research and development. The company will certainly continue to focus on the legal services vertical market and seems to be in a strong position to serve that market well.

4. LOTUS DEVELOPMENT CORPORATION

a. Markets Served

- Lotus Development Corporation is the largest independent software company in the world, and its two key products, 1-2-3 and Symphony, are standards in the business consulting and services industry. 1-2-3 integrates spreadsheet graphics and data base functions while the company's second product, Symphony, incorporates word processing and communications as well as spreadsheet, graphics, and data base functions.

b. Company Strategy

- Aftermarkets for 1-2-3 and Symphony are Lotus' targets for growth. The company has set out on a program of acquisition and business development intended to expand applications for 1-2-3 and Symphony. Lotus now offers a variety of enhancements and add-ons for its base products, and all new applications function together as an expanding integrated system.



c. Recent Events

- Lotus announced over 12 products in 1986 and the first month of 1987. The company also acquired six companies between mid-1985 and November 1986. The six acquisitions include Software Arts, Inc.; Dataspeed, Inc.; GNP Development Corporation, an artificial intelligence startup; ISYS Corporation, a provider of financial data base network connections; InfoCenter Software, Inc., a developer of micro/mainframe links; and Graphics Communications, Inc., a graphics software developer. New products are all add-ins for Lotus, and most are part of Lotus' plan to transform 1-2-3 into a major operating environment. A sampling of new products follows:
 - HAL - a natural language interface for 1-2-3.
 - Freelance Plus - a graphics package which integrates with 1-2-3.
 - Catsup (catalog supplement) - a tracking system for spreadsheets with a catalog-like index file system.
 - @BASE - a dBASE III-compatible package that enlarges 1-2-3's management capabilities.
 - Goal Solutions - a business-production planning scheduling package.
- Other new 1-2-3 compatible products include micro/mainframe links, financial planning tools, and several word processors.

d. Future Directions

- Lotus' future course is well established--acquire companies and develop products to supply an increasingly wide range of applications via 1-2-3 and Symphony, and develop 1-2-3 into a major operating environment. Lotus will focus on providing products for the IBM PC and compatible microcomputers.



5. METIER MANAGEMENT SYSTEMS, INC.

a. Markets Served

- Metier Management Systems, Inc., a subsidiary of Lockheed Corporation, has developed Artemis, a fourth generation language specifically intended for project management. Approximately one-fourth of Metier's revenue comes from architectural/engineering firms.
- When first released, Artemis was a turnkey system based on Hewlett-Packard machines, but the software has recently been ported to run on IBM mid-range computers (specifically the 9370 series), the DEC VAX series of mini-computers, IBM mainframes, and, most recently, IBM and compatible micro-computers.
- Some modules of Artemis that might be of particular interest to architectural/engineering firms include a cost management module, a module for tracking plans and drawings, and a module for tracking task lists within projects.

b. Company Strategy

- Artemis is a very generalized project management package which, as a fourth generation language, has essentially unlimited applications within project management. Metier does offer a variety of modules which can be mixed to provide a partially customized system, but none of these modules is specific to a particular industry.
- In summary, Metier's strategy is to provide a general project management tool to as many different industries as it can.



c. Recent Activities

- In early 1985 Metier was acquired by the Information Systems Group of Lockheed Corporation but has remained a largely independent entity. Recent product introductions include Artemis PC, a personal computer version of Artemis which was introduced in 1985 but has since been taken off the market to make room for a new PC product. The new product, Artemis Project, will be released in April 1987.

d. Future Directions

- In the second quarter of 1987, Metier will embark on an aggressive advertising campaign for its new PC product and for its entire line of products. The company intends to broaden its potential customer base through this advertising campaign and by conducting research to devise new applications for its flagship product. Metier has no specific plans for marketing to architectural and engineering firms but expects this market to continue as a major market for Artemis.

6. CCH COMPUTAX

a. Markets Served

- CCH Computax provides processing services and software products for income tax processing. Certified Public Accountants may contract the services of CCH Computax to process their clients' returns. Products and services include a line of traditional batch processing services, each specialized for a particular kind of return—Individual Services, Partnership Services, Oil and Gas Depletion, Corporation Services, Partnership Services, Fiduciary Services, and Deferred Compensation Services. In addition to batch services, CCH Computax supplies a microcomputer-based turnkey system which acts as a PC workstation connected to a CCH processing center. CPAs may process tax returns using Computax software resident on the microcomputer or may send them via modem to a Computax data center for processing.

b. Company Strategy

- Computax targets a narrow market with a series of specialized products and services for tax return processing. Its clients include certified public accountants and professional tax preparers.

c. Recent Activities

- In late 1986, the company released its microcomputer product, "The Command System," and introduced a new service for oil and gas depletion return processing.

d. Future Directions

- Computax is established as a service bureau for income tax processing and shows no sign of straying from its specialty. However, its new micro-based turnkey system is a move to satisfy the ever increasing demand for in-house computing.

7. COMPUTER LANGUAGE RESEARCH, INC.

a. Markets Served

- Computer Language Research, Inc. (CLR), founded in 1964, provides income tax processing services, microcomputer-based software products, and turnkey systems to CPAs and tax professionals. CLR also markets electronic forms automation software and equipment for use in its tax processing activities and for sale in nontax-related applications.
- Products and services for the public accountant market include the CLR/MICROTAX series of microcomputer applications for tax preparation and the FAST-TAX line of software products, processing services, and turnkey systems, also for tax preparation.



- Clients may access CLR's processing services in batch or on-line modes.
- b. Company Strategy
- CLR segments its business into four primary markets:
 - The domestic CPA tax market, including public accounting firms of all sizes.
 - The corporate tax market, including large corporations which use CLR's products and services to prepare their taxes in-house.
 - The bank trust market, which consists of large commercial banks that offer trust services to their clients and use CLR's tax processing services to prepare fiduciary tax returns.
 - The international tax market, which consists of professional organizations that prepare expatriate returns for U.S. citizens employed outside the U.S. This includes national public accounting firms with internationally-based operations.
- CLR's strategy in marketing to public accounting firms is to provide a comprehensive line of products and services which will serve the needs of sole proprietors as well as the largest accounting firms in the country.
- c. Future Directions
- There is a strong trend in all industry sectors toward moving computer operations in-house. Lower costs and greater control over company data are the motivating forces behind this trend. Computer Language Research, Inc. is responding to this trend by increasingly emphasizing its software products and turnkey systems over processing services.

1. The first part of the paper discusses the importance of the study of the history of the English language. It is argued that the study of the history of the English language is essential for a full understanding of the language and its development. The paper then goes on to discuss the various factors that have influenced the development of the English language, such as the influence of other languages, the influence of social and cultural changes, and the influence of technological advances.

2. The second part of the paper discusses the importance of the study of the history of the English language. It is argued that the study of the history of the English language is essential for a full understanding of the language and its development. The paper then goes on to discuss the various factors that have influenced the development of the English language, such as the influence of other languages, the influence of social and cultural changes, and the influence of technological advances.

3. The third part of the paper discusses the importance of the study of the history of the English language. It is argued that the study of the history of the English language is essential for a full understanding of the language and its development. The paper then goes on to discuss the various factors that have influenced the development of the English language, such as the influence of other languages, the influence of social and cultural changes, and the influence of technological advances.

4. The fourth part of the paper discusses the importance of the study of the history of the English language. It is argued that the study of the history of the English language is essential for a full understanding of the language and its development. The paper then goes on to discuss the various factors that have influenced the development of the English language, such as the influence of other languages, the influence of social and cultural changes, and the influence of technological advances.

5. The fifth part of the paper discusses the importance of the study of the history of the English language. It is argued that the study of the history of the English language is essential for a full understanding of the language and its development. The paper then goes on to discuss the various factors that have influenced the development of the English language, such as the influence of other languages, the influence of social and cultural changes, and the influence of technological advances.

- The MICROTAX line of products was introduced within the last two years to serve the needs of small accounting firms wishing to bring tax processing in-house. Interactive processing allows users to combine in-house and service bureau processing.



IV I.S. DEPARTMENT ISSUES

A. BUDGET ANALYSIS

- IS budgets in the services sector are expected to show stronger than average growth in 1987. This is consistent with stronger than average growth in employment and revenue for the services sector.
- Exhibit IV-1 shows the distribution of 1986 budgets and projections for 1987.
- Communications and hardware will be the fastest growing budget categories in 1987. This reflects the industry's drive to bring computing in-house and to connect and integrate applications so as to provide better service to its clients.
- The areas of smallest growth will be outside processing and minicomputers. Firms are bringing, or have already brought, data processing in-house and are apparently finding no place for minicomputers in their hardware configurations. Micro/mainframe links, local area networks, and increasingly powerful PCs are squeezing the mini out of its mid-ground niche.
- No interview respondents in this sector expected IS budgets to decrease, although the majority (57%) expected slight growth or no growth at all.



EXHIBIT IV-1

**1986 BUDGET DISTRIBUTION AND
1986/1987 CHANGES IN THE SERVICES SECTOR**

BUDGET CATEGORY	1986 PERCENT OF I.S. BUDGET	1986-1987 EXPECTED BUDGET GROWTH
Personnel Salaries and Fringes	27.9%	2.7%
Mainframe Processors	26.3%	18.8%
Minicomputers	.5%	0%
Microcomputers	8.9%	18.8%
Other Hardware	9.6%	17.8%
Total Hardware	45.3%	18.2%
Data Communications	3.1%	10.9%
External Software	14.1%	8.8%
Professional Services	.9%	2.4%
Turnkey Systems	1.3%	4.2%
Software Maintenance	4.0%	4.5%
Hardware Maintenance	2.7%	0%
Outside Processing Services	.7%	1.7%
Total	100.0%	10.8%



- Over 45% of the 1986 budget was devoted to purchasing new hardware. Personnel costs followed hardware, capturing 27.9% of overall expenditures.
- Approximately 65% of software development staff in this sector will be assigned to developing new applications while the other 35% will maintain and enhance existing systems.

B. I.S. PLANNING ISSUES

- The primary goal of automation in the services sector is to improve the personal productivity of individuals and groups of individuals who perform the services marketed by companies in this sector.
- The fundamental IS department issues are as follows:
 - **Obsolescence.** It is generally accepted that computer hardware becomes obsolete every three years. IS managers should take this into consideration and realize that budgeting for IS is a continuous task rather than a one-shot effort.
 - **Hardware connectivity and software integration.** Connected hardware facilitates communication of information throughout an organization or between organizations. Integrated software makes data available to a number of applications without duplicated data entry. Perfect connectivity and integration are rare, and the shortcomings of current technology are obstacles to full implementation of the ideal connected system.
 - **Education.** The support and training provided by vendors should be a major consideration in selecting a system. There is always a learning curve with implementation of a new system, and managers must expect



an initial decrease in productivity before the benefits of a new system begin to show. The period of decreased productivity can be minimized by effective training and good support.

- Technology. Technology is changing so quickly that it is difficult for partners, principals, and managers to keep up with the options available to them, but it is important that they be versed in the general direction of developments in computer systems for their industries. This will enable them to understand and identify the possible benefits of new systems.
 - Attitude of management. In many well-established companies, management is an obstacle to successful implementation of computers. Some managers simply do not see the potential benefits of automating or do not believe computers can be cost-effective.
 - Standards for on-line data bases. Accounting, legal services, real estate, and business services all use on-line data bases to speed research. A common complaint among companies using more than one data base is the lack of a standard command language. Each data base has its own command language, making it necessary for users to relearn each set of commands for each session. This is a problem for all users except those who use a wide variety of data bases frequently.
- Exhibit IV-2 summarizes the major IS issues and objectives for the services sector.

C. APPLICATIONS

- Progress in computer services for the services sector will be in the form of new hardware configurations and ways of structuring software as opposed to



EXHIBIT IV-2

**SERVICES
ISSUES AND OBJECTIVES**

- **Obsolescence**
- **Connectivity and Integration**
- **Education**
- **Attitude of Management**



entirely new applications. This progress will have its greatest impact on those segments of the services industry which currently spend large amounts of time transferring data from one place to another or from one format to another.

- Micro/mainframe links are being implemented by some companies in the services sector to improve personal productivity. The effect is to combine the flexibility and consistently quick response of a personal computer with the storage capacity of a mainframe.
- Project management applications assist architectural/engineering firms by scheduling the various component tasks of a larger job and by tracking the status of all projects in progress.
- Property management applications maintain tenant information and provide billing and accounting functions for commercial and residential real estate managers.
- On-line data bases are widely used in the services sector. Currently, on-line data bases are available with information relevant to almost any profession or discipline. Most are delivered through telephone modems or dedicated terminals, but many data base providers are considering adding optical disks as an alternative delivery format. Disks would be delivered to clients for use on their own or rented hardware and would be updated periodically.
- Applications for the legal services sector include, in addition to on-line data bases, recordkeeping applications and modified word processing programs which store legal forms electronically and allow lawyers to simply fill in the blanks when preparing legal documents.
- The primary function of data bases in services is to speed the process of locating sources of information on a particular topic. In the cases of real estate, and sometimes law, the data base is itself the needed source, but it is more often used as a tool to compile lists of sources to be found elsewhere.



- Advertising firms are using desktop publishing to prepare ad copy. Although the Apple Macintosh is the most popular vehicle for desktop publishing, this is a rapidly expanding market with many new entrants, so competition will be stiff. The development of the laser printer has broken open the desktop publishing market by making very high quality print and graphics available through microcomputers.
- Exhibit IV-3 lists the major applications used by the services sector.



EXHIBIT IV-3

**SERVICES
APPLICATIONS**

- **Micro/Mainframe Links**
- **Project Management**
- **Property Management**
- **Desktop Publishing**
- **Billing and Recordkeeping**
- **On-Line Data Bases**

APPENDIX SI-A: FORECAST DATA BASE

- Exhibit SI-A-1 contains the services industry sector industry-specific information services market forecast by delivery mode for 1985-1991.



EXHIBIT SI-A-1

SERVICES INDUSTRY SECTOR
INDUSTRY-SPECIFIC SERVICES MARKET, 1986-1991

SEGMENTATION DELIVERY MODE	(\$M) 1985	85-86 GROWTH	(\$M) 1986	(\$M) 1987	(\$M) 1988	(\$M) 1989	(\$M) 1990	(\$M) 1991	AAGR 86-91
Processing/Network Services	857	14%	976	1,102	1,245	1,406	1,588	1,793	13%
• Remote Computing/Batch	850	14%	969	1,095	1,237	1,398	1,580	1,785	13%
• Facility Management	7	0%	7	7	8	8	8	8	3%
Applications Software						186			
• Mainframe/Mini	86	22%	105	127	154	61	225	272	21%
• Microcomputer	24	25%	30	38	48	247	77	98	27%
Total Applications Software	110	23%	135	165	202	650	302	370	22%
Turnkey Systems	338	17%	395	465	599	2,303	760	880	17%
Sector Total	1,305	15%	1,506	1,732	2,046		2,650	3,043	15%



APPENDIX SI-B: FORECAST RECONCILIATION

- This appendix contains the reconciliation of INPUT's 1985 services industry sector forecasts for the period 1985-1990 and the 1986 forecasts shown in this report (see Exhibit SI-B-1).
- The annual average growth rate for remote computing/batch processing has been reduced from 17% to 13% due to a trend toward bringing control of information systems in-house. The growth rate for facility management has been reduced from 15% to 3% for the same reason.
- The growth rate for applications software has been reduced from 36% to 22% for the following reasons:
 - Growth in the applications software market has peaked during the last two years.
 - Pricing for applications software, in general, has decreased.
 - Decision time for making applications software purchases appears to have increased over the last few years due to confusion over the number of software packages available.
 - The applications software market in the services sector is a relatively large market, which means that a small percentage growth represents a large dollar growth. As the market grows in size, growth rates must decrease slightly.

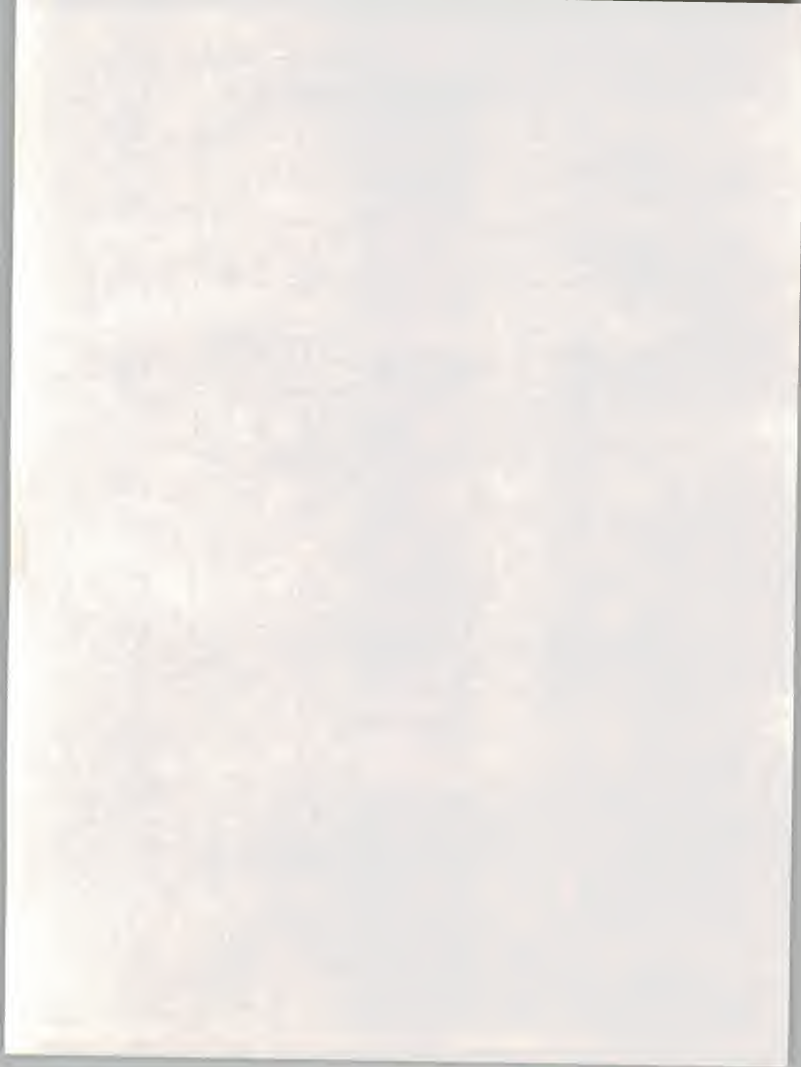


EXHIBIT SI-B-1

RECONCILIATION OF SERVICES SECTOR INDUSTRY-SPECIFIC MARKET FORECAST

DELIVERY MODE	1985 MARKET			1990 MARKET			1985-1990 AAGR Forecast in 1985 Report (%)	1986-1991 AAGR Forecast in 1986 Report (%)
	1985 Forecast (\$M)	1986 Report (\$M)	Variance as % of 1986 Report	1985 Forecast (\$M)	1986 Forecast (\$M)	Variance as % of 1986 Forecast		
Processing/Network Services	859	857	0%	1,912	1,588	20%	17%	13%
• Remote Computing/Batch Services	853	850	0%	1,900	1,580	20%	17%	13%
• Facility Management	6	7	-14%	12	8	50%	15%	3%
Applications Software	110	110	0%	504	302	67%	36%	22%
Turnkey Systems	355	338	5%	1,256	760	65%	29%	17%

II-SI-40



- The growth rate for turnkey systems has been reduced from 29% in the 1985 forecast to 17% in the 1986 forecast. Reasons for this are as follows:
 - The specific nature of turnkey systems has been hurting turnkey vendors over the past few years. Users looking for specialized systems often develop them in-house or turn to professional services vendors to develop them from scratch. Other users with less specific needs rely on generalized hardware and cross-industry applications. Turnkey systems have fallen into a middle ground for which growth has not been as strong as anticipated.
 - Turnkey systems, like applications software, is a relatively large market for which growth rates must gradually decline as market size increases.



INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, communications, and office products and services.

The company carries out continuous and in-depth research. Working closely with clients on important issues, INPUT's staff members analyze and interpret the research data, then develop recommendations and innovative ideas to meet clients' needs.

Clients receive reports, presentations, access to data on which analyses are based, and continuous consulting.

Many of INPUT's professional staff members have nearly 20 years' experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed in 1974, INPUT has become a leading international planning services firm. Clients include over 100 of the world's largest and most technically advanced companies.

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